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# IMPACT OF E-WASTE ON ENVIRONMENT

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## INTRODUCTION

"E-waste" is a popular, informal name for electronic products nearing the end of their some "useful life."E-wastes are considered dangerous, as some components of electronic products contain materials that are hazardous, depending on their condition and density. The hazardous content of these materials pose a threat to human health and environment. Discarded computers, televisions, VCRs, stereos, copiers, fax machines, electric lamps, cell phones, audio equipment and batteries if improperly disposed can leach lead and other substances into soil and groundwater. Many of these products can be reused, refurbished, or recycled in an environmentally sound manner so that they are less harmful to the ecosystem. This paper highlights the hazards of e-wastes, the need for its appropriate management and options that can be implemented.

Electronic waste (e-waste) is one of the fastest-growing pollution, now a days in this worldwide if a variety of toxic substances contaminate the environment and threaten then human life health. In this present paper an overview has been taken of toxic substances present in e-waste, their potential environmental and human health impacts together with management. Several tools including Life Cycle Assessment (LCA), Material Flow Analysis Multi Criteria Analysis (MCA) and Extended Producer Responsibility (EPR) have been several tools has been developed to manage e-wastes especially in developed countries. SOMFA), manage the countries. Like can be developed to manage the e-waste eco-design devices, properly collect e-waste, recover and recycle material by safe methods, dispose of e-waste by suitable techniques, forbid the transfer of used electronic devices to developing countries, and raise awareness of the impact of e-waste. No e-waste. single tool is adequate but together they can complement each other to solve e-waste issue. A national scheme such as EPR is a good policy in solving the growing e-waste problems.

**Definition:**

E-Waste, also called electronic waste, is the name for electronic products that have come towards the end of their "useful life." This can include computers, monitors, televisions, stereos, copiers, printers, fax machines, cellphones, dvd player, cameras, batteries, and many more electronic devices. Used electronic devices can be reused, resold, salvaged, recycled or disposed. E-waste has a horrible effect on the environment and it is important to give your e-waste to an R2 certified recycling facility.

**Effects On Environment:**

E-waste can be toxic, men biodegradable and accumulates in the environment, in the soil, air, water and living things. For example, open-air burning and acid baths being used to which recover valuable materials from electronic components which release toxic materials leaching into the environment.

Disposal of e-wastes is a specific problem faced in many regions across the globe. Computer wastes that are landfilled produces contaminated leachates which eventually pollute the groundwater. Acids and sludge obtained from melting computer chips, if disposed on the ground causes acidification of soil. For example, Guiyu, Hong Kong a thriving area of illegal e- waste recycling is facing acute water shortages due to the contamination of water resources.

This is due to disposal of recycling wastes such as acids, sludges etc. in rivers. Now water is being transported from faraway towns to cater to the demands of the population. Incineration of e-wastes can emit toxic fumes and gases, pollutes the surrounding air. Improperly monitored landfills can cause environmental hazards.

**Facts:**

1. Computers and most electronics contain toxic materials such as lead, zinc, nickel, flame retardants, barium, and chromium.
2. When e-waste is warmed up, toxic chemicals are released into the air damaging the atmosphere.
3. When electronic waste is thrown away in landfills their toxic materials seep into groundwater, affecting both land and sea animals.
4. Only 10 percent of cell phones are recycled in the United States and most Americans get new cell phones every 12 to 18 months.
5. In Guiyu, China, many of the residents exhibit substantial digestives, neurological, respiratory and bone problems.

**Effects On Human Health:**

The health effects of certain constituents in e-wastes are as follows. If these electronic items are discarded with other household garbage, the toxics pose a threat to both health and vital components of the ecosystem.

| Source of e-wastes | Constituent | Health effects |
|---|---|---|
| Solder in printed circuit boards, glass panels and gaskets in computer monitors | Lead (PB) | Damage to central and peripheral nervous systems, blood systems and kidney damage. Affects brain development of children. |
| Chip resistors and semiconductors | Cadmium (CD) | • Toxic irreversible effects on human health. Accumulates in kidney and liver. Causes neural damage. Teratogenic. |
| Relays and switches, printed circuit boards | Mercury (Hg) | • Chronic damage to the brain.<br>• Respiratory and skin disorders due bioaccumulation in fishes. |

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|---|---|---|
| Corrosion protection of untreated and galvanized steel plates, decorator or hardner for steel housings | Hexavalent chromium (Cr) VI | • Asthmatic bronchitis.<br>• DNA damage |
| Cabling and computer housing | Plastics including PVC | • Burning produces dioxin. It causes<br>• Reproductive and developmental problems;<br>• Immune system damage;<br>• Interfere with regulatory hormones |
| Plastic housing of electronic equipments and circuit boards. | Brominated flame retardants (BFR) | • Disrupts endocrine system functions |
| Front panel of CRTs | Barium (Ba) | • Short term exposure causes: Muscle weakness;<br>• Damage to heart, liver and spleen. |
| Motherboard | Beryllium (Be) | • Carcinogenic (lung cancer)<br>• Inhalation of fumes and dust. Causes chronic beryllium disease or beryllicosis.<br>• Skin diseases such as warts. |

**Management of E-wastes:**

It is estimated that 75% of electronic items are stored due to uncertainty of how to manage it. These electronic junks lie unattended in houses, offices, warehouses etc. and normally mixed with household wastes, which are finally disposed off at landfills. This necessitates implementable management measures.

**Tips:**

1. Don't throw the waste cell phones, dumped systems into the landfills. whereas, deliver them to such organizations where recycling is carried out.
2. Get the electronic goods from the vendors who can take it back for recycling.
3. Take care of the hardware equipments and so that e waste can be efficiently decreased
4. Big Industries may buy recycles that can be used for long time.
5. Citizens should turn their interests to use the recycled products
6. Support green engineering.

Reducing e-waste isn't just about eliminating those environmental risks. Minimizing e- waste also helps us to conserve resources and reduces the amount of energy we need to make these products; recycling parts within e-waste uses considerably less energy than creating new ones.

We can also help keep down the cost of new consumer goods by using recycled parts to make new products. This is a far less expensive proposition for manufacturers than having to go mining for virgin ore to make new metals. This means that the cost of making a new smart phone, or any other electronic device, goes down once manufacturers are able to access the parts they need from the recycling industry.

By recycling the e-waste win-win proposition can be achieved all around. The challenge, of course, is that not enough people know that e-waste can be recycled.

That's why one of the by strongest and most effective ways is learning and make aware how to reduce e- waste recycling the product.

**CONCLUSION**

E-waste a relatively new segment and global problem of waste removal. It is also the fastest growing segment worldwide in discarded waste. This growing problem in the world is largely ignored or misunderstood. Many people do not understand what it is or how it affects them, the world, cr the environment. So the question "What is e-waste" needs to be addressed before any solutions can be effective.

The best method of disposal is to recycle this equipment. Many people do not understand that the parts in old devices can be reused in new products. There is a popular mantra used by many recycling advocates, "Reduce, Reuse, and Recycle." This slogan has widely been promoted with plastics and glass, but its message is also applicable to the disposal of e-waste. Many electronic stores offer services to help customers bring in old electronics or parts so as to dispose of them safely and properly.

Unfortunately, there is another alternative being used for the removal of e-waste in the world. Much of the e-waste in developing nations is being exported to developing countries. Many developed countries have enacted laws to prevent this from happening, but e- waste is still often being exported. The bulk of the world's e-waste is being shipped to Nigeria, Ghana, Pakistan, India, and China, among others. While it seems odd that a country would willingly import another's waste, the waste is imported, sometimes illegally. The countries that are receiving this e-waste have lax laws protecting their workers or the environment. Many of the workers are children, or are working countless hours each day. There is also the reality that much of the refuse from electronic devices is hazardous. The dumping of these materials following the harvesting of scrap can lead to contamination of soil or water, damaging an area's environment and potentially their food sources.

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